

General

Title

Maternal and newborn care: proportion of newborn screening samples that were unsatisfactory for testing, by submitting hospital and comparator groups.

Source(s)

Maternal newborn dashboard - key performance indicator criterion reference guide, version 1.3. Ontario (Canada): Better Outcomes Registry and Network (BORN) Ontario; 2014 Jul 2. 12 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the proportion of newborn screening samples that were unsatisfactory for testing, by submitting hospital and comparator groups.

Rationale

Pregnancy, birth, and the early newborn period are times of high use of health care services. Although these times provide opportunities for providing quality care, they are also potentially times of missed opportunities for health promotion; furthermore, there may be safety issues and increased costs for the individual and the system when quality is not well defined or measured. Almost all women have multiple contacts with the health care system during these times, including consultation with a variety of care providers, diagnostic testing, and a hospital admission. Most newborns also spend time in hospital, and a small proportion of them require intensive care.

There has been a need to identify key performance indicators (KPIs) to measure quality care within the

provincial maternal-newborn system. The authors also wanted to provide automated audit and feedback about these KPIs to support quality improvement initiatives in a large Canadian province with approximately 140,000 births per year. The authors therefore worked to develop a maternal-newborn dashboard to increase awareness about selected KPIs and to inform and support hospitals and care providers about areas for quality improvement.

Evidence for Rationale

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. *J Obstet Gynaecol Can.* 2013 Jan;35(1):29-38. [PubMed](#)

Primary Health Components

Newborn screening; unsatisfactory samples

Denominator Description

Total number of newborn screening samples submitted by a given hospital (submitter) as recorded by Newborn Screening Ontario (NSO) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of unsatisfactory newborn screening samples submitted by a given hospital (submitter) as recorded by Newborn Screening Ontario (NSO) (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

To validate the seven potential indicators as being appropriate for use throughout the province, the authors first extracted data from the BORN Information System (BIS) for fiscal year 2009 to 2010 to assess historical and current performance on these indicators across Ontario's 14 health regions (Local Health Integration Networks). Simultaneously, evidence summaries on each of the potential indicators were developed in collaboration with the Knowledge to Action Research Centre at the Ottawa Hospital Research Institute (Thielman et al., 2011; Konnyu, Grimshaw, & Moher, "What are the drivers," 2010; Konnyu, Grimshaw, & Moher, "What are the maternal," 2011; Konnyu, Grimshaw, & Moher, "What is known," 2011; Khangura, Grimshaw, & Moher, 2010). This group, which has expertise in the review and synthesis of literature to support evidence-informed health care decision-making, assisted with determining the level of scientific evidence to support each indicator. For example, the evidence summary

on early term repeat Caesarean section (i.e., before 39 weeks' gestation) in a defined population determined that as a result of this practice there were indeed objective risks to babies that could be reduced by delaying delivery.

Following review of the data and evidence summaries, the committee removed one indicator and refined some of the others, leaving six. In five of the six, the potential for improvement in rates was obvious. The remaining indicator (rate of screening for group B streptococcus) is currently satisfactory throughout all health regions of the province; however, the committee felt it was important at the outset to have the dashboard reflect not only performance areas requiring improvement, but also areas in which performance was good.

Evidence for Extent of Measure Testing

Khangura S, Grimshaw J, Moher D. What is known about the timing of elective repeat cesarean section?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 May. 11 p.

Konnyu K, Grimshaw J, Moher D. What are the drivers of in-hospital formula supplementation in healthy term neonates and what is the effectiveness of hospital-based interventions designed to reduce formula supplementation?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 Oct. 13 p. (KTA Evidence Summary; no. 8).

Konnyu K, Grimshaw J, Moher D. What are the maternal and newborn outcomes associated with episiotomy during spontaneous vaginal delivery?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Jul. 11 p. (KTA Evidence Summary; no. 13).

Konnyu K, Grimshaw J, Moher D. What is known about the maternal and newborn risks of elective induction of women at term?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Mar. 13 p. (KTA Evidence Summary; no. 10).

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. [PubMed](#)

Thielman J, Konnyu K, Grimshaw J, Moher D. What is the evidence supporting universal versus risk-based maternal screening to prevent group B streptococcal infection in newborns?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Oct. 11 p. (KTA Evidence Summary; no. 14).

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Newborns

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Three-month reporting period

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Diagnostic Evaluation

Institutionalization

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Total number of newborn screening samples submitted by a given hospital (submitter) as recorded by Newborn Screening Ontario (NSO)

Note: The key performance indicators (KPIs) criteria are defined by the pertinent BORN Information System (BIS) data elements that are used to calculate the rates and proportion values for the respective Maternal Newborn Dashboard KPI. As well, pick-list values for each data element, when selected, will result in a patient record to be either included or excluded for a given KPI based on the KPI criterion definition.

Refer to the original measure documentation for a complete list of KPI criteria.

Exclusions

Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Number of unsatisfactory newborn screening samples submitted by a given hospital (submitter) as recorded by Newborn Screening Ontario (NSO)

If reason for unsatisfactory sample is selected by NSO, record is included in key performance indicator (KPI):

Lab Unsatisfactory

Blood spots appear clotted or layered

Blood spots appear diluted

- Blood spots appear scratched or abraded
- Blood spots are supersaturated
- Blood spots are wet and/or discoloured
- Quantity of blood insufficient
- Specimen delivered to lab greater than 14 days after collection

Data Unsatisfactory

- Blood dot collection paper is expired
- Blood spots appear to be damaged or delayed in transit
- Insufficient data provided

Other Unsatisfactory - Other

Note:

Samples coded as unsatisfactory due only to collection at less than 24 hours of age (i.e., there are no other reasons the sample was deemed unsatisfactory) were not considered unsatisfactory for this analysis, since sample collection at less than 24 hours of age is recommended in cases of early discharge, transfer, or transfusion.

There will be no missing data for the 'NSO unsatisfactory samples' KPI. Each sample provided to NSO must fall into one of two categories: satisfactory or unsatisfactory. This determination will always be available for each sample.

Refer to the original measure documentation for a complete list of KPI criteria.

Exclusions

Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Registry data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

BORN Information System (BIS) Maternal Newborn Dashboard (MND)

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

Target:	Less than 2%
Warning:	2% to 3%
Alert:	Greater than 3%

Evidence for Prescriptive Standard

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. [PubMed](#)

Identifying Information

Original Title

KPI 1 - Proportion of newborn screening samples that were unsatisfactory for testing, by submitting hospital and comparator groups.

Measure Collection Name

Maternal-Newborn Care Performance Indicators

Submitter

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

Developer

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

Funding Source(s)

Better Outcomes Registry and Network (BORN) Ontario is funded by the Ontario Ministry of Health and Long Term Care.

Composition of the Group that Developed the Measure

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Financial Disclosures/Other Potential Conflicts of Interest

None declared.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2014 Jul

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in April 2016.

Measure Availability

Source not available electronically.

For more information, contact BORN Ontario at 401 Smyth Road, Ottawa, ON, K1H 8L1; Phone: 613-737-7600 x 6022; Web site: www.bornontario.ca/en/ ; E-mail: info@bornontario.ca.

NQMC Status

This NQMC summary was completed by ECRI Institute on January 26, 2015. The information was verified by the measure developer on April 21, 2015.

The information was reaffirmed by the measure developer on April 4, 2016.

Copyright Statement

No copyright restrictions apply.

Production

Source(s)

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